A-LEVEL

ICT

Unit 1: Practical Problem Solving in the Digital World
Mark scheme

2520

June 2014

Version1.0: Final

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this Mark Scheme are available from aqa.org.uk

GENERAL GUIDANCE NOTES FOR EXAMINERS

Overall guidelines

1. All examples accepted should be clearly related to the subject area and should not be "generalised" examples.
2. Attention should be paid to ensure that marks are not awarded for simple restating of the question or the stem, often involving the exact same terms.
3. It should be remembered that scripts could be seen after they are marked and so consistency of approach and correct mechanics of marking are essential.
4. Rules on positioning of ticks and marks are to aid in checking and remarking of scripts.
5. Do not expect the candidate to use the exact wording given in the mark scheme. If you are in doubt as to the correctness of an answer given by the candidate, consult your Team Leader.
6. The answers given in the mark scheme are exemplars. Credit must be given for other correct answers not given in the mark scheme. Please refer to Team Leaders where there is any doubt.
7. One-word answers, where acceptable, will be indicated on the question paper.
8. The meaning of ICT-specific words and phrases are generally as defined by *BCS Glossary of Computing and ICT* (current edition).

Specific marking guidelines

9. The basic rule is one mark one tick. The tick to be positioned at the point where the mark is gained in the answer and definitely not in the margin.
10. The only figures in the margin should be sub-totals for parts of questions and a final total for the whole question in the box provided.
11. All writing must be marked as read, either by the presence of ticks or by striking through the script with a vertical line.
12. Where candidates have added extra to their answers on additional pages, the total mark should be indicated as 'including x marks from supplementary page y'. The total mark should be written in the appropriate printed box on the question paper. The use of the following symbols/marks is acceptable:
    a. BOD – where the benefit of the doubt is given for the point the candidate is making. This is generally where poor writing or English is an issue. Its widespread use should be avoided.
    b. An omission sign ^ should be used where the candidate has given insufficient information to gain a mark. This is particularly useful when a teacher or student looks at scripts against a mark scheme.
    c. It may be appropriate to indicate where the same point has been covered more than once by an arrow or where a point has been covered in several lines of prose by the use of brackets.
    d. For questions where candidates' answers are assessed for QWC, no individual ticks should be written on the script as it should be marked holistically.

14. Markers are responsible for checking:
    a. The transposition of marks to the front cover
    b. That all work has been marked on each script
    c. That all marks for individual questions are totalled correctly
    d. That the script total is transferred to the box at the top right of the script.
    e. That they **clearly** initial the script, under the total at the top right, so it is possible for the Principal Examiner to identify each markers work

1	A supermarket opened the first virtual store at a UK Airport in 2012.	*(1 mark)*
	What input device could be used by customers to order the items they require?	
	Purpose of the Question	
	Application of knowledge and understanding of applications software used in mobile (smart) phones.	
	Guidance for examiners on how to mark this question	
	One mark for a valid input device	
	Example answer	
	A smart phone (1) would be the input device used by customers to order the items they require from the supermarket virtual store.	
	Area of the Specification and AOs this question covers	
	3.1.4 AO1.5	

2	Explain what a farmer might use a computer for and how that could be of benefit to him.	*(6 marks)*
	Purpose of the Question Application of knowledge and understanding of the use of hardware and software	
	Guidance for examiners on how to mark this question Max 4 for a list of uses with no expansion Up to four marks for benefits/expansions	
	Example answer The farmer would be able to sell produce online (1) taking advantage of serving a wider audience. (1) The farmer could use e-agriculture to keep informed regarding competitors' prices (1) which may enable him to sell more produce at a competitive price. (1) Supplies could be ordered from a wider range (1) saving the farmer money. (1)	
	Area of the Specification and AOs this question covers 3.1.4, 3.1.6, 3.1.7 AO1.5	

3	Now that you have studied Health and Safety legislation relating to the use of ICT systems, explain what measures you could take to protect your health when using a computer.	*(6 marks)*
	Purpose of the Question	
	Application of knowledge and understanding of Health and Safety legislation relating to the use of ICT systems and the measures that should be taken to protect health when using a computer	
	Guidance for examiners on how to mark this question	
	One mark per point Max 4 for a list of measures	
	Example answer	
	I should use a height adjustable chair (1) and adjust it to the correct height. (1) I should use an ergonomic keyboard (1) and an ergonomic mouse (1) to prevent RSI. (1) I should use a wrist rest. (1)	
	Area of the Specification and AOs this question covers	
	3.1.1 AO1.5, AO2.2	

4	Describe what Figure 1 is an example of and how it can be used. Use examples to illustrate your answer. Figure 1 	*(6 marks)*
	Purpose of the Question Application of knowledge and understanding of input devices and their uses.	
	Guidance for examiners on how to mark this question Up to two marks for explaining what the code is. Up to five marks for explaining how it can be used, including examples	
	Example answer This is a QR code (1) which means it is a quick response code (1) it is a two dimensional barcode used to identify products, (1) The code is read with a smart phone. (1) QR codes provide a quick way to a web location. (1) In 2012 1,000 QR codes were placed all around a Welsh town, giving both locals and tourists an opportunity to explore the town via the web. (1)	
	Area of the Specification and AOs this question covers 3.1.4 3.1.7 AO1.2, AO1.5 AO2.3	

5(a) (i)	Give **one** requirement from your Sample Work for what the solution is to produce.	1 mark
	Purpose of the Question	
	Understanding the nature of the client's requirements, what the solution is to produce	
	Guidance for examiners on how to mark this question	
	Check page reference first	
	Requirement for what the solution is to produce (1)	
	Requirement must have been stated in the Sample Work but the exact wording is not necessary.	
	Example answer	
	1 mark for what	
	To produce an invoice (1) Or To produce a website (1)	
	Area of the Specification and AOs this question covers	
	3.1.2 AO2.1	

5(a) (ii)	Give **one** requirement from your Sample Work for how the solution is to work.	1 mark
	Purpose of the Question Understanding the nature of the client's requirements, and how the solution is to work	
	Guidance for examiners on how to mark this question **Check page reference first** Requirement for how the solution is to work (1) Requirement must have been stated in the Sample Work but the exact wording is not necessary.	

	Example answer
	
	1 mark for how
	
	   By automatically calculating total for the invoice including VAT (1)
	Or Providing the ability to display correctly on different screen
	   resolutions (1)	

	Area of the Specification and AOs this question covers 3.1.2 AO2.1	

5(b)	Explain how you would evaluate that a client's requirements had been met.	*(4 marks)*
	Purpose of the Question	
	Understanding and application of knowledge of how to evaluate the client requirements	
	Guidance for examiners on how to mark this question	
	One mark per point	
	Example answer	
	I would ask the client to look at the output to check the presentation was accurate (1)) and that the logo was on every page of the website, as requested. (1) I would go back after a month to ask the client (1) if the new way of advertising has resulted in more customers. (1)	
	Area of the Specification and AOs this question covers	
	3.1.2. 3.1.10 AO2.1	

5(c)	How did you find out about your user's IT skills? What use could you make of this information?	*(4 marks)*
	Purpose of the Question Skill – to find out the user's IT skills	
	Guidance for examiners on how to mark this question Method of investigation (1) expansion in context (1) Up to 2 marks for why did you find out what they were Up to 2 marks for how did you use this information.	
	Example answer I interviewed the users (1) face to face (1) and asked about their skills. I did this so that I would know the level of their IT skills (1) so that I could provide them with a user appropriate solution. (1)	
	Area of the Specification and AOs this question covers 3.1.2 AO1.6, AO2.1	

5(d)	With reference to your Sample Work, what inputs were required, where did they come from and how were they entered?	*(8 marks)*
	Purpose of the Question Skill – identify the inputs required, where they came from and how they were entered	
	Guidance for examiners on how to mark this question **Check page reference first** Marks for inputs, where they came from and how they were entered Max 4 marks for inputs Full mark for answers covering all elements of the question	
	Example answer One of the inputs required from my solution were pictures of the football team (1) There was a picture of the team in their kit (1) and an action picture during a game (1) which were taken by the client. (1) I input them directly from the camera memory card. (1) Another input was the logo (1) I designed this in another package (1) and copied and pasted it on to the webpage (1) after the client approval.	
	Area of the Specification and AOs this question covers 3.1.2 AO1.6, AO2.1	

5(e)	Explain your test plan.	(6 marks)
	Purpose of the Question Knowledge and understanding the purpose and nature of testing of ICT-related solutions	
	Guidance for examiners on how to mark this question **Check page reference first (** 1 mark for each valid point. Max 3 marks if content simply listed (no explanation).	
	Example answer My test plan included test numbers (1) to ensure I carried out the testing methodically. (1) I tested the accuracy of output (1) of the webpage by showing it to my client for checking. (1) I tested the validity of data input (1) by testing the range check on customer number (1) with normal data of 22. (1)	
	Area of the Specification and AOs this question covers 3.1.9 AO1.9, AO2.2, AO2.4	

6	On completion of the analysis of a problem the following two client requirements have been established	*(17 marks)*
	1 The data input must be valid 2 The information output must be accurate Discuss, using examples from an ICT system of your choice, how you would design and evaluate a solution to the problem that ensures these two requirements will be met.	
	Purpose of the Question Understanding and application of knowledge of the design of an ICT system to ensure robust data entry and evaluation of client requirements	

	Guidance for examiners on how to mark this question
	
	Low mark range
	Student has either simply explained what would have been included in the design or has evaluated one the client requirements. The student demonstrates little understanding of design and evaluation of client requirements.
	
	                                             0 – 6 marks
	Mid mark range
	Student has given a detailed explanation of what would be included in the design to meet requirements and/or has evaluated at least one of client requirements, explaining how they have been met. The student demonstrates some understanding of design and evaluation of client requirements.
	
	                                       7 – 12 marks
	Good mark range
	Student has referred to both of client requirements and explained how they have been met showing a thorough understanding of design and evaluation of client requirements.
	                                      13 – 17 marks	

	Area of the Specification and AOs this question covers 3.1.2 3.1.8 3.1.10 AO1.6, AO2.2	

7	IBM Industry Solutions Executive, Dr Simon Eassom, said, 'If we have access to every book available online, why does a school need a library? IT has the potential to revolutionise what we do with teaching and learning at all levels, from nursery to old age. If the classroom is the World Wide Web (WWW), where is the classroom?' Discuss.	*(20 marks)*
	Purpose of the Question Understanding and application of the uses of ICT	
	Guidance for examiners on how to mark this question **Low mark range** Candidate shows little understanding of how classrooms in the future may be different to those of today. At least one example in context has been used. The candidate has used a form and style of writing that is barely appropriate to its purpose. The candidate has expressed simple ideas clearly, but may be imprecise and awkward in dealing with complex or subtle concepts. Information or arguments may be of doubtful relevance or be obscurely presented. Errors in spelling, punctuation and grammar may be noticeable and intrusive to understanding, suggesting weaknesses in these areas. Text is barely legible. **0 – 5 marks** **Mid mark range** Candidate shows some understanding of how classrooms in the future may be different to those of today. Examples in context have been used. Meaning is nearly always clear. The candidate has, in the main, used a form and style of writing, which is appropriate for its purpose; with some lapses. The candidate has expressed simple ideas clearly and reasonably fluently. Candidate has used sentences and paragraphs. Information or arguments are generally relevant. There may be some errors of spelling, punctuation and grammar. Text is legible. **6 - 10 marks** **Good mark range** Candidate shows a good understanding of how classrooms in the future may be different to those of today. Examples in context have been used. Some specialist vocabulary used has been explained. Meaning is clear. The candidate has, in the main, used a form and style of writing, which is appropriate for its purpose; with occasional lapses. The candidate has expressed moderately complex ideas clearly and reasonably fluently. Candidate has used well-linked sentences and paragraphs. Information or arguments are generally relevant and well structured. There may be occasional errors of spelling, punctuation and grammar. Text is legible. **11 - 15 marks**	

7 cont	.	
	High mark range Candidate shows a very good understanding of how classrooms in the future may be different to those of today. Examples in context have been used. Any specialist vocabulary used has been explained. Meaning is clear. The candidate has selected and used a form and style of writing appropriate to purpose and has expressed complex ideas clearly and fluently. Sentences and paragraphs follow on from one another clearly and coherently. There are few, if any, errors of spelling, punctuation and grammar. Text is legible. **16 - 20 marks**	
	Area of the Specification and AOs this question covers 3.1.4, 3.1.5, 3.1.6, 3.1.7, 3.1.8 AO1.2, AO1.5	